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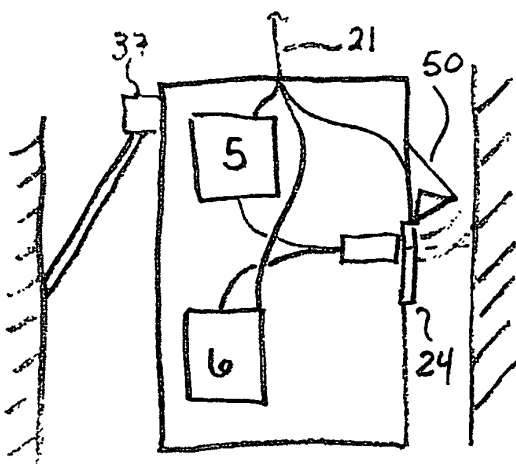
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(54) Title: IN-SITU DETECTION AND ANALYSIS OF COAL BED METHANE FORMATIONS WITH OPTICAL INSTRUMENTS AND METHODS AND APPARATUS TO FACILITATE METHANE PRODUCTION AND ANALYSIS



(57) Abstract: A measuring system for in-situ measurements down a well by a spectrometer is provided. The spectrometer includes a radiation source and a detector. A probe is optically connected to the spectrometer and includes an optical pathway for transmission of a radiation from the radiation source and at least a second optical pathway for transmission of a characteristic radiation from a sample to the detector. A positioner is provided to position the probe near a side surface of the borehole and to optically couple the optical pathways to the side surface, wherein the probe is traversable up and down the well by way of a guide operatively connected to the probe and to a fixed location at the wellhead. By use of the apparatus and method a concentration of methane or other substance of interest is obtained, and thereby, a potential production of a coal bed methane formation is obtained.